The implementation of a certification system in the agricultural sector of Costa Rica: the case of Rainforest Alliance Certified (RAC)[1]

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Abstract

We analyze the evolution of the Rainforest Alliance Certification system (RAC) and its implementation in the agro-exporting sector of Costa Rica. Certification systems like RAC incorporate a certain number of social and environmental criteria, with implications on the organization of the primary production side. We approach these implications and analyze how the environmental services concept (ES) was integrated into the certification criteria.

We use a combination of secondary information, interviews with key informants related to the certification system, and interviews at farm level to certified producers in three sectors: coffee, banana, and pineapple.

The incorporation of the ES concept into the RAC remains unclear and happened well after the consolidation of the RAC. The certification is perceived as a successful institution for protecting the environment, and less as a social improvement device. Certified producers do not receive any *premium price* for their products, but having the RAC is clue for keeping access to the markets, achieving a good enterprise image and accomplishing the social and environmental national legislation.

Keywords: Export crops, Environmental Services, Certification system, Rainforest Alliance, Costa Rica.

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1. Introduction

The agriculture is one of the productive sectors that utilize the greatest quantity of lands and water consumption, causing a great deforestation and contamination because of the use with no measurements whatsoever of agrochemicals. According to the Rainforest Alliance (RA) the agriculture uses 38% percent of the available world land and it is the main cause of destruction of wild life habitats and the extinction of the flora and fauna. Moreover, agrochemicals-intensive production systems in large plantations are also blamed to poison laborers and people living in near communities, causing a high social cost.

Facing the former challenges, it is needed the adoption of production systems and management techniques that show social and environmental responsible activities, while at the same time yield a competitive differentiation of products in international markets. This differentiation or products is aimed to meet a dynamic social and environmental normative of the international commerce (Garefy, G. ET to. 2001) and the tendencies of the consumers to request for healthier and environmentally friendly products. In this sense, the implementation of grades and standards has taken a great importance to accomplish the consolidation of the efficiency, equity and the sustainability of commodity chains, in special for fresh produce with destination to international markets (Ruben and Sáenz, 2008).

Certification systems and the use of the so-called “green seals” are a popular way to armonize production and conservation, while at the same time provide to consumers of reliable information about the conditions under which the commodity has been produced (Muradian and Pelupessy, 2005).

Green seals and environmental certifications play an important role by encouraging the reduction of environmental negative impacts generated by agriculture. It might be seen as one of the most developmental and promising alternatives in the search of accomplish better sustainable practices (Soto and Le Coq. 2011). They complement other public and private initiatives that overlooks for better quality of the environment and the life conditions of the communities. Rainforest Alliance Certified (RAC) is an example of the accomplishing of several socio environmental requirements, including the conservation of ecosystems. Therefore, the so-called “Environmental Services” (ES) and “Ecosystem Services” (ES), which are used for agricultural purposes, should be an important component of the RAC (Mora, ET to. 2012).

An agro-export country like Costa Rica has not been excluded from the dynamics described above and there is an important development of certification systems in the Costa Rican agricultural sector. Export commodities, like banana, coffee and pineapple, have been forced to adopt measures aimed to make them more attractive in the international markets as well as allowing them to adapt to consumer demands (Mora, ET to. 2012). In addition, an increasing environment and social concern for better productive

practices have applied a strong national and international pressure over this type of plantations.

In this paper we analyze the evolution and implementation of the certification program Rainforest Alliance Certified (RAC), as well as the level of inclusion of ES notion inside the RAC criteria. Besides we analize the perceptions of producers regarding the global performance of the RAC.

The RAC certification program is an attractive case study since originated in Costa Rica to address a specific agricultural/environmental problem, and has gained a vertiginous growth and consolidation in other sectors worldwide. The RAC has been implemented in more than 100 different agricultural activities in America, Africa and Asia (Mora, ET to. 2012).

The rest of the document is organized as follows: in section 2 we describe the genesis, evolution and operation of the RAC in Costa Rica. In section 3 we specify the used methodology and spacial distribution of visited farms. In section 4 we present major outcomes, taking into account variables like farmers' motivations to get certified, difficulties to implement the norm, perceived benefits, and the global assesmennt of the certification performance. Next section shows possible contributions of the RAC on the strenghtenning of the ES notion. We conclude in the final section.

2. Genesis, evolution and operation of Rainforest Alliance Certified

Rainforest Alliance Certified is a certification program that uses a seal to guarantee that certain agricultural produce fulfills a serie of socio-environmental principles, which are established by the Sustainable Agriculture Network (SAN). The objective of SAN is to encourage primary producers to analyze and therefore to mitigate certain environmental and social negative effects caused by agricultural activities. This is a process of continuous motivation and improvement (SAN, 2010).

The scheme of operation is made up by different actors who have a particular function. The SAN is the normalizing entity, which means it is the responsible to create and modify the norms. On the other hand, the Sustainable Farm Certification, Intl. (SFC) is the certifiying agency. The SFC performs farm visits and uses reports from inspectors to determine if a given farm fulfills or not the criteria specified in the norm. SFC is credited by the International Organic Accreditation Service (IOAS). The seal itself belongs to Rainforest Alliance.Therefore, once the SFC gives the approval to a specific farm so that it is registered letter, communicates to Rainforest Alliance that can yield the use of the seal for his products.

The Norm is composed by ten principles related to the handling of productive systems, social and environmental aspects. Each principle is made up of criteria that describes the practices that be must followed by the property registered. At the moment it contains

99 criteria, of which 15 are considered like critical and of obligatory fulfillment (Mora, ET to. 2012).

The producers can choose either to certify property of an individual form by means of the conventional norm or to resort to the Norm for Groups, that is a possibility implemented by SAN to facilitate the access to small producers or groups of organized agriculturists, who by economic reasons cannot certify themselves individually.

The program of certification Rainforest Alliance, so and as is known today, is the result of the evolution of a series of initiatives and actions that have been developed 20 years in the last. In 1989 Rainforest Alliance installed their Conservation Average Center in San José, Costa Rica, and altogether initiated with diverse organizations of the civil society a project known like “Better Banana” that allowed the elaboration of a program of certification for the banana tree culture that granted seal “ECO-OK”, (Salazar, 1994), which in 2003 happened to be called “Rainforest Alliance Certified”. (The FAO, 2004). This was implemented as an answer to the strong environmental and social questioning made to the agro sector (Fernandez, 1994).

For 1992, the first version of the Norm for the Sustainable Agriculture was finalized. Its basic principles were based on the conservation of the natural ecosystems and the protection of the wild life (Salazar, 1994). Although it also incorporated other subjects related to the labor conditions of the workers and their families.

Later, Rainforest Alliance incorporated organizations of diverse countries, which gave to passage to the creation of the Sustainable Agriculture Network (SAN), which at the moment is the organization owner of the norm (SAN, 2007). SAN has worked in the elaboration of diverse versions of the norm to go including different cultures and subjects that consider excellent to evaluate in the property. In this sense, one is due to indicate that although the protection of ecosystems and the protection of the wild life were central principles from the beginning in the norm, the slight knowledge of Environmental Services (ES) and ecosystem Services (ES) are not used in the first versions.

In the 2005 version it has been mentioned for the first time the term Environmental Services, but in a marginal form and not as a central element within the same one. With respect to Ecosystem Services, it is not either used as an aspect to medullar, but it is gotten up as part of the description of the principle of conservation of ecosystems, that is to say, it is already recognized explicitly that the ecosystems offer a series of services and that, therefore, is necessary preserved. In the 2010 version both concepts are retaken again of marginal way. Nevertheless, although the slight knowledge are not incorporated of clear and exhaustive form, it is deduced that its importance is recognized implicitly in the principle referring to the conservation of ecosystems, since it is understood that the present ecosystems in the agricultural property play a roll like borrowers of services and that, therefore, is necessary that the registered property make efforts based on protecting them and recovering them. Additionally, in other principles of the norm dispositions exist that allow to help to control the negative aspects that are generated from the agricultural production and which they are possible to be understood

like actions that facilitate a better fulfillment of the functions or services that offer to the ecosystems (Mora, ET to. 2012)

The norm, when incorporating these aspects that must be implemented in concrete actions in the property, is contributing to that the ecosystems act their as more efficiently, that is to say, the services that can offer, such as: protection of the biodiversity, purification and regulation of the water, control of plagues, ground formation and nutrients, diminution of the erosion and the carbon capture, among others (Mora, ET to. 2012).

With respect to the certification process this it initiates with the request of the producer so that a certification audit is made, from which determines the conformity with the Norm for Sustainable Agriculture. If the interested one prefers it can solicit that an Audit of diagnosis is made whose results are not binding and must like objective implement the improvements necessary to fulfill the requirements established by the Norm. Once the property satisfactorily approves the certification audit, which is made by some of the different organisms from authorized inspection for such effect, Sustainable Farm Certification Intl gives the approval so that the property is registered.

Annual audits are made during year 1 and 2 to verify and to monitoring the fulfillment of the norm and to identify remedial actions, additionally to these verification audits can be made that are carried out to confirm some concrete point of the documentation and the plans developed in previous audits. Finally, investigations audits can be given that consist of announced visits not to take care of complaints or put specific subjects in knowledge of the inspection organisms. So that the property maintains the certification must make a new audit of certification to the third year.

In the case of property that have the norm for groups the auditors make the inspection of the Internal System of Control and make a sampling random of the 10 percent of the property, to verify the conditions of fulfillment in the field. If a property has deficiencies it gives the pursuit him required in successive audits.

The certification process entails three types of costs for the administrator of the property that are certify. First of them it is related to the initial investments of implementation that must assume the producer to put into operation the management system. The second cost is of audit, this must be covered by the producer or the intermediary, according to is the agreement that they have established among them. The amount varies depending on the number of days that the audit lasts, since it covers the travel allowances with the auditor or the technicians who make the visit. And the third cost of certification corresponds to the annual quota of membership that must cancel the producer or intermediary according to the size of the property, this varies between $50 for property smaller to 100 has a % $3.500 in property of de1001 have more (SFC, 2011).

3. Methods

We used information from secondary sources, interviews to clue actors behind the certification systems and field visits to certified farms. An important part of information was provided by Rainforest Alliance, the Sustainable Agriculture Network and their social organizations. Primary information was the result of semi-structurated interviews to employees of Rainforest Alliance, the Sustainable Agriculture Network and other people supervising the implementation of the norm. We interviewed managers from three certified farms, in three different regions and sectors: Central Region (Coffee), Northern Zone (Pineapple) and Huetar Atlántica Region (Banana) (See Figure 1).

<Insert Fig 1 here>

Selected farms and crops were determinated through a non-pobabilistic sampling method, in coordination with the Sustainable Agricuture Auditing Services of the Rainforest Alliance. We followed this sampling method because usually farm managers do not provide sensible information about their farms operation without a previous induction on the type of research they are mean to colaborate. This induction was previously performed by the Sustainable Agricuture Auditing Services and they prepared a list of candidate farms. We selected three at random, for the three studied sectors.

Table 1 shows some figures on the importance of the selected sectors for the country and for the certificartion process itself.

<Insert Table 1 here>

Selected farms show different organization patterns and scales. For example, we interviwed three medium-sized farms beloging to Costa Rican entreperneurs, two cooperatives, one fundation that owns a production unit, another farm belonging to a private university, and a transnational operation. All these case studies were selected from the candidate list mentioned above and after a process of contact and dating. Table 2 shows major characteristics of each visited farm.

<Insert Table 2 here>

We focused in the interviews to identify the objectives and motivations of producers to get certified. Besides, we wanted to know their main difficulties during the process of implementation and accomplishment of the normative, as well as the main benefits that they have obtained. Finally, we analyzed the potential relationship between the application of the normative and the conservation of ecosystems, in special the strenghtening of the provision of ecosystem services for agricultural purposes.

4. Rainforest Alliance Certified and its implications for certified farms

The analysis of information obtained shows that the implementation of all critera at farm level implies several common aspects, for all type of explotations and sectors. However, there are other issues where differences amongst farms and sectors are more evident. Perhaps the most relevant example of these differences is the perceived benefits of the certification by users. Thable 3 shows a comparison of the certification performance at farm level.

<Insert Table 3 here>

National producers of banana and pineapple got knowledge of the certification requirement from their brokers and retailers in the target markets. The transnational company DOLE applied for the certification by their own decision, based on their own market research. In the case of coffee cooperatives, they applied to the certification as part of a broader strategy to gain a better position inside their agro-chain (Soto and Le Coq, 2011). In this sense, the cooperatives did not wait for the external market pressure for being certificated and started the process well in advanced.

The main reason identified by pineapple and banana producers to undergo certification is related to a requirement of the customers and intermediaries. Growers are looking to add value to the product and this is recognized in international markets with a better price. In coffee, it is common to use certification as a strategy to obtain higher profits in times when the international price is low (Muradian and Pelupessy, 2005). Additionally, reasons cited for certification include the need for tools that help protect ecosystems, improve the socioeconomic conditions of the employees and relations with local communities, which improve the companies' image.

In the three sectors there are other certifications, such as Global Gap, ISO 14000, ISO 14001, SA8000 in pineapple, Global Gap for banana and Fairtrade, UTZ Certified, and C.A.F.E. Practices in coffee, which are important to enter their major export markets, such as the U.S. and the EU. Different certifications are viewed by farmers as complementary, because some give greater emphasis to environmental, social or other safety certifications. However, Rainforest Alliance is viewed as one of the most comprehensive ones on the topics covered. In this sense, the three sectors make a positive assessment as they feel satisfied with its performance at environmental, social, and market levels. Moreover, they perceive that the control and monitoring carried out by inspectors is strict, by means of a thorough review of the documentation and verification of the proper implementation of standards in the field.

Regarding the time it takes for implementing the requirements for first-time, this will vary from company to company, depending on the human and financial resources available to them. This ranges from two months to one year.

In terms of difficulties in the implementation process, the most important in the three sectors identified is cultural change. People are resistant to changes that involve changing their habitual patterns of behavior. This problem is displayed in the field, processing plants and even at the administrative level. Other issues that involve strong efforts are ones related to documenting and implementing specific issues in the field, such as proper waste management, water

treatment, preventing producers from planting in areas not allowed by the rules, non-use of certain inputs and use of personal protective equipment.

Regarding the benefits acquired from becoming certified, at the labor level there is an improvement in the health conditions of workers, linked to the obligation of using appropriate personal protective equipment. This has resulted in decreasing accidents, as well as disability and insurance charges and expenses.

On the environmental side there is a significant cultural change among farm owners, and mainly in the behavior of workers, who have learned to implement a series of policies that favor environmental protection, such as water analysis in the rivers; use of live fences and barriers that minimize erosion levels; reduction and elimination of some agrochemicals; establishment of protected areas; elimination of burning; water treatment; protection of flora and fauna; and reforestation in areas close to ecosystems, among others. Additionally, there is a greater control over water and energy consumption due to monitoring of their use, which has led to a reduction in consumption levels.

According to interviewees, in the case of pineapple and bananas the main and most important benefit of market differentiation is to enable them to sell their produce to middlemen or supermarkets that request it as a requirement. However, a better price is not received for the product sold. On the other hand, in the case of coffee there is an additional $5 per bushel in recognition of being certified.

In terms of performance benefits, there are basically two relevant ones: On the one hand, the support that certification provides for the good image of the company, and on the other, benefits at the level of administrative and operational improvements involved in implementing the system. In the first case, having a good image is strategic for access to international markets, covered by a globally recognized certification. In the second case, producers benefit from having to implement a series of processes required for certification, which are reflected in improvements in internal organization, preparation of written procedures, labor and organization enhancement and a better working environment.

In terms of infrastructure, it is stressed that improvements take place in areas such as roofing, lighting, sanitary conditions in restrooms, improved storage and dining facilities, treatment plants and drinking water.

The perception that exists between the cost of certification and the benefits obtained is positive in the three sectors studied. Although various investments must be made, it is understood that they result in benefits for farms, and are therefore justified.

Although the use of the standard is seen positively as a tool for continuous improvement, it comes into question when it is not a requirement for entering the market. If the standard was not a demand from customers and intermediaries, it is possible that farms producing pineapples and bananas would not be using the certification system, unlike the coffee sector, a sector which indicated it would continue to use it. This may be related to the latter receiving a tangible economic benefit (overprice), a situation that does not occur with pineapples and bananas.

However, they indicated that they would retain some of the best practices learned from the implementation of the standard.

In terms of ecosystem services, the respondents think that a relationship exists between these and certification. When a number of good environmental standard practices are implemented, they can minimize the negative impacts of agriculture and help conserve and even restore ecosystems within the production units. In other words, the norm seeks to maintain and protect high-value ecosystems in order to continue the fulfilment of their biophysical functions and prevent damages, even when other nearby ecosystems are changed drastically and given way to a new landscape dedicated to crops. Compliance with the rule seeks to maximize the services provided by these ecosystems, taking into account that they are within an area dedicated to the production of crops.

On SAN-compliant farms that produce pineapple, coffee and banana it is possible to identify a common set of ecosystem services that are preserved or where deterioration is minimized, through the use of best practices and conservation of ecosystems of high value, such as secondary forests, thickets, secondary forest, wetlands, rivers, streams and lakes.

Table 4 summarizes main ecosystem services that may be provided by certified farms:

<Insert Table 4 here>

It must be noted that not all farms meet the same practices, or protect identical ecosystems to the same extent due to their characteristics. Thus, ecosystem services in farms may vary. However, the most common that can be identified include: nutrient cycling; formation, conservation and fertility of soil; erosion control; carbon sequestration; wood production; crop pollination; pest control; biodiversity protection; maintenance and restoration of habitats; providing shade; breaking down and absorbing waste, and water protection, as well as aesthetic and educational purposes.

4. Conclusiones

According to Gereffi ET to. (2001), the Rain Forest Alliance Certified (RAC) can be considered a third part certification system. This means that the there exist at least three actors: the certifying farm, a supervising actor that inspects at the field the fullfilment of the norm, and an impartial third actor that defines the norms for a specific sector, the Sustainable Agriculture Network (SAN), in this case. Furthermore, the RAC also fits into the category of “green seals” or “eco-labelling”, since pursues to make products attractive to specific consumers that are concerned on an environmental friendly production.

The arise of the certification system can be related with two facts behind the arise of norms and standards in general, namely the incorporation of the environmental agenda within trade negotiations, for one side, and the lack of proper mechanisms to guarantee social and environmental responsible products, for the other side, in special for those products originated

in developing countries. Therefore, the first successful experience of the RAC was the creation and adoption of a policy instrument for the banana sector in Costa Rica.

The RAC encompases a good balance of social and environmental criteria aimed to transform the production systems into a better one. Stated otherwise, is one single certification system for attacking different problems environmental and social problems. However, most users and consumers regard the RAC as a tool for the protection of ecosystems. Although several principles and criteria for the protection of ecosystems were incorporated into the first versions of the norm (i.e. the first norm for banan sector), it was not clear, or well explicited, the importance of ecosystems for the production process itself. There was a certain bias in protection but not in use. The notion of “environmental services” or “ecosystem services” (ES) is integrated until the year 2005, but not as an explicit component of the norm. Stated otherwise, the inclusion of the ES notion is somehow an outcome of external pressure, but not as an outcome of technical research. It is assumed that the protection of ecosystems inside the production unit yields direct benefits for the production process itself that can considered as ES.

Although the protection of such ecosystems is compulsory and seemingly important for the production process, it is needed a explicit incorporation of ES concepts inside the norm, with clear and verifiable indicators. Otherwise, it would remain as “grey zone” inside the norm. An example of a possible indicator is the amount of Carbon sequestration inside certified coffee plantations.

The RAC uses the protection of ecosystems as a marketing strategy for a better positioning of the certification itself. However the explicit inclusion of the ES notions is still pending in this strategy. For the norm version of the 2010 year it is included a specifi group of criteria for “sustainable cattle production” and the creation a voluntary module on climate change mitigation. Both initiatives remain inconnected with the ES notion, as well.

Most of the interviewed large and medium-sized producers in coffee, pineapple and banana perceive the RFA as an institution for protecting and conserving the environment, and less as a social improvement devise. Those producers that already accomplish the social and environmental legislation of Costa Rica do not need to perform large changes in their productions systems, or to make costly investments. However, the implementation of certification gives a good opportunity to “put in order” the farms and so gaining important environmental and social changes in the short term.

Although certified producers do not receive any price advantage or premium price for their produce (with the exception of coffee producers), it is widely recognized that having the RAC is clue for keeping access to the markets, having a good enterprise image and accomplishing the social and environmental national legislation.

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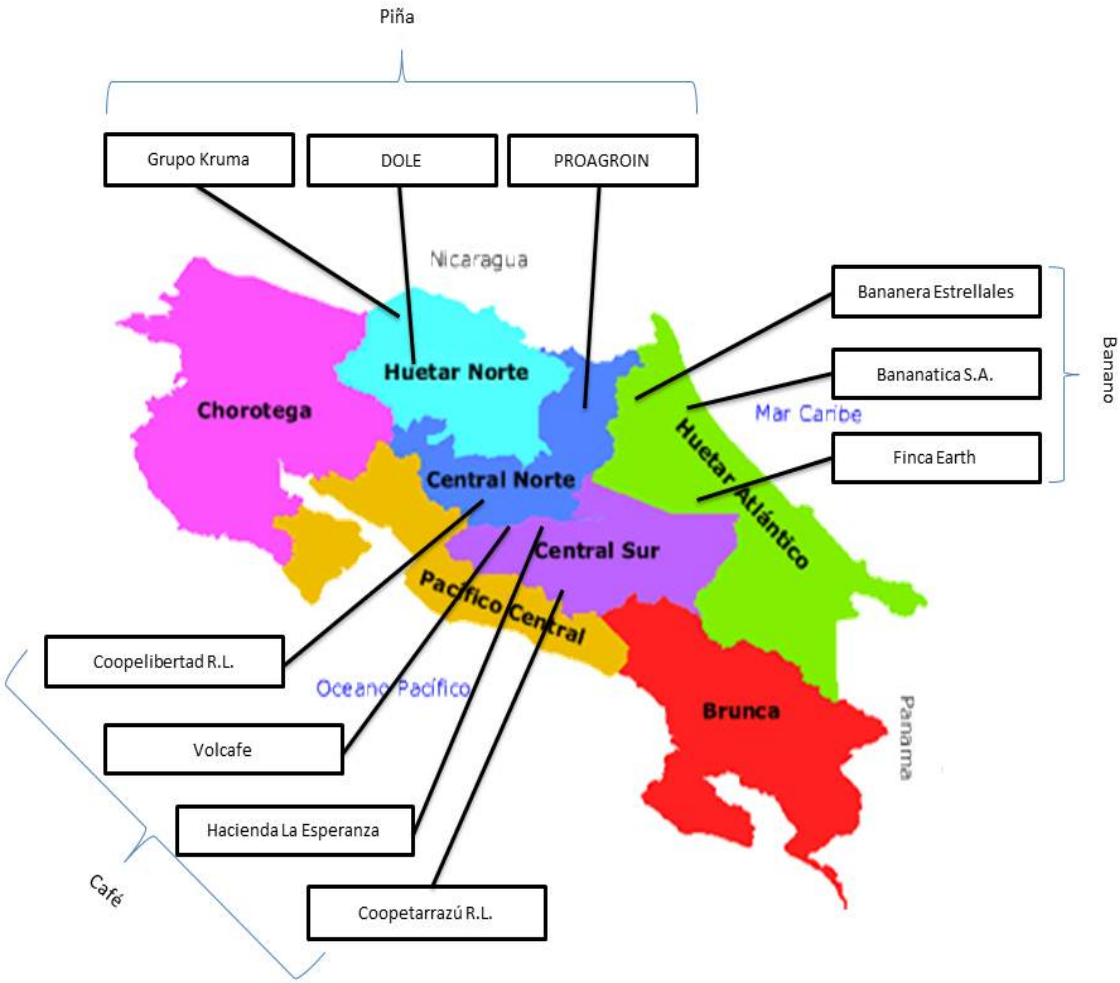
Fig 1 Studied Farms and Regions Location



Source: Self elaborated at ICER, 2011

Table 1: Importance of selected sector for Costa Rica

Crop	Export earnings (Millon US$)	Exports (ton)	*Total area cultivated (ha)*	*Certify Area RAC* (ha)
Pineapple	678,53	1, 657, 384	45.000	7.655
Banana	744.6	1,800,000	43.000	20.732
Coffee	258,8	73, 437	98. 681	10.462

Source: SFC, 2011; CANAPEP, 2010; Sepsa-MAG, 2011; Procomer, 2011; CORBANA, 2011 a, b; CORBANA, 2010; ICAFE.

Table 2: Characteristics of selected farms

Crop	Operation	Description
Pineapple	PROAGROIN	Organization with about 180 small producers, who Work under the figure of a private foundation, and has about 550 cultivated ha.
	Agrícola Kruma	Local capital Enterprise, has an extension of 350 ha Cultivated, sells its production to a transnational Enterprise.
	DOLE	Transnational Enterprise that posses a total of 1132 ha of land cultivated
Banana	Bananera Estrellales	Enterprise of local capital. Which posses a cultivated extension of 188 ha, sell's its production to another transnational enterprise
	Bananatica S.A.	Enterprise of local capital. Which posses a cultivated extension of 1280 ha, sell's its production to another transnational enterprise
	Finca Agro comercial EARTH	Experimental field that belongs to Earth University, has an extension of 233 ha cultivated, sells its products to a supermarket in USA.
Coffee	Coopelibertad R.L	A cooperative that posses 33 fields certify by the rain forest that represents a total of 192 ha.
	Coopetarrazú R.L	A cooperative that posses 120 fields certify by the rain forest that represents a total of 595 ha.
	VOLCAFE	A beneficiary of transnational capital that processes the product of small coffee farmers.
	Hacienda La Esperanza	Enterprise of local capital, that posses an extension of 66 ha. Of cultivated field.

Source: self elaborated with obtained information from interviews, 2011

Table 3: comparison of the certification performance at farm level

Variable	Pineapple	Banana	Coffee
Knowledge about the existence of certification	Intermediaries	Intermediaries	On own initiative
Reason for certification	Market requirement Ecosystems / Socio-economic conditions / community relations, image	Market requirement, environmental	New markets, better price
Other certifications	Global Gap, ISO 14000, ISO 14001, SA8000	Global Gap	Fairtrade, UTZ certified , y C.A.F.E. Practices
Comparison of certifications	Complementary	Complementary	Complementary
Main export markets	USA/Europe	USA/Europe	USA/Europe
Evaluation of certified	Positive	Positive	Positive
Program rigor	Strict	Strict	Strict
Cost /benefit	Positive	Positive	Positive
Difficulties	Cultural Change, Documentation, Waste Management	Cultural Change	Cultural Change, Health and safety
Access to markets	Yes	Yes	Yes
Overprice	No	No	Yes
Organizational changes	Yes	Yes	Yes
Improves the image	Yes	Yes	Yes
Infrastructure improvements	Yes	Yes	Yes
Improved working environment	Yes	Yes	Yes
If not required, would be certified	No	No	Yes

Compliance voluntary	Some aspects	Some aspects	Some aspects
Radical changes at the environmental	No	No	No
Incremental changes at the environmental	Yes	Yes	Yes
Relationship certified / ecosystem services	Yes	Yes	Yes

Table 4: Summarizes main ecosystem services that may be provided by certified farms

Ecosystem services	**NAS criteria** *(2010)*
Training, maintenance and fertilization	The farm must promote the use of fallow areas with natural or planted vegetation in order to recover natural fertility and interrupt pest life cycles. The farm must have a plan that indicates the fallow techniques or practices (planting, natural regeneration, etc.) (C 9.4)
Waste absorption and breakdon	The farm must have an integrated waste management program for the waste products it generates. (C 10.1)
Protection of water	The farm must have a water conservation program that ensures the rational use of water resources (C 4.1)
Habitat creation and restoration	Ecosystems that provide habitats for wildlife living on the farm, or that pass through the farm during migration, must be protected and restored (C 3.2) The cutting of natural forest cover or burning to prepare new production areas is not permitted (C 9.5)
Conservation of Biodiversity	All existing natural ecosystems, both aquatic and terrestrial, must be identified, protected and restored through a conservation program (C 2.1) Ecosystems that provide habitats for wildlife living on the farm, or that pass through the farm during migration, must be protected and restored (C 3.2)
Pest regulation	The farm must have an integrated pest-management program based on ecological principles for the control of harmful pests (C 8.1.) The farm must promote the use of fallow areas with natural or planted vegetation in order to recover natural fertility and interrupt pest life cycles. T (C 9.4)
Erosion Control	The farm must execute a soil erosion prevention and control program that minimizes the risk of erosion and reduces existing erosion. T (C

	9.1) The farm must use and expand its use of vegetative ground cover to reduce erosion and improve soil fertility; structure and organic material content, as well as minimize the use of herbicides. (C 9.3)
Carbon sequestration	The farm must implement practices to diminish its emissions of greenhouse gases and increase carbon dioxide sequestration. (C 10.6)
Educational	The farm must help with local environmental education efforts and must support and collaborate with local research in areas related to this standard. (C 7.5)
Sense of place and identity	The farm must respect areas and activities that are important to the community socially, culturally, biologically, environmentally and religiously. (C 7.1)
Provision of shade and shelter	…in the case of monoculture crops with an average plant height lower than two meters, farms must provide shelter for shade and protection from extreme weather conditions, such as heavy rain and lightning. (C 6.20)
Nutrient Cycles	In these respects, the certification does not establish a particular approach, but, these services are further enhanced by the good practices that are implemented certification,
Climate regulation	
Fuelwood	
Pollination	
Recreation and ecotourism	
Aesthetic / inspiration	

Source: Self elaborated at SAN, 2010 & MEA, 2003.